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**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA**

OCEANA, INC.,

Plaintiff,

v.

GINA RAIMONDO, in her official capacity
as Secretary of Commerce; NATIONAL
OCEANIC AND ATMOSPHERIC
ADMINISTRATION; and NATIONAL
MARINE FISHERIES SERVICE,

Defendants.

Case No. 5:21-cv-05407

**COMPLAINT FOR DECLARATORY AND
INJUNCTIVE RELIEF**

Administrative Procedure Act Case

INTRODUCTION

1. Plaintiff Oceana challenges a final agency action, NMFS's approval of Amendment 18 to the Coastal Pelagic Species Fisheries Management Plan, that fails to rebuild the Pacific sardine population to healthy levels, in violation of the Magnuson-Stevens Fishery Conservation and Management Act ("MSA"). The health of the Pacific sardine population is crucial to the West Coast marine ecosystem and to fisheries that depend on sardine as direct catch, bait, or food for other target species like salmon. Yet in approving Amendment 18, the National Marine Fisheries Service ("NMFS") chose a suite of already disproven, status quo management measures that will keep this population at levels too low to support either the ecosystem or the primary fishery that relies on sardine for half a century or more.

2. Amendment 18 is the latest episode in the Pacific sardine's saga as a cautionary tale for poor environmental stewardship. Pacific sardine were famously the foundation and the demise of Monterey's Cannery Row during the 1930s to 1950s, when sardines supported the largest fishery in the western hemisphere. But overfishing in the face of changing ocean conditions caused the fishery to collapse in the 1950s. Fishery managers, reluctant to limit fishing even as the population fell precipitously, failed to close the major directed commercial fishery until 1967. Even then, managers continued to allow fishermen to catch sardines for live bait and as incidental catch. Unsurprisingly, the population continued its downward trajectory until managers implemented a complete fishing moratorium in 1974. This failure to act swiftly at the first signs of declining abundance caused the sardine collapse to last longer and decline to lower levels, and, when sardines did start to rebound, prevented the population from reaching its previous abundance levels. Despite these hard lessons, NMFS repeats these management failures in Amendment 18.

3. The MSA requires NMFS to implement conservation and management measures to help overfished fish populations swiftly return to healthy levels that can support a sustainable fishery in the long-term. These measures, known as a "rebuilding plan," must be based on the best scientific information available. Instead of implementing measures to rebuild the Pacific

1 sardine, however, NMFS merely relabeled existing management measures as a rebuilding plan,
2 maintaining the status quo. What NMFS calls a “rebuilding plan” in Amendment 18 is in fact
3 merely a continuation of the same status quo management measures that resulted in an
4 overfished population and under which the population continues to decline. Unsurprisingly,
5 NMFS’s own modeling predicts Amendment 18 will not rebuild the Pacific sardine population.

6 4. In contorting status quo management into a so-called rebuilding plan, NMFS
7 failed to use the best available science.

8 5. Instead of developing a plan that would achieve the abundance (measured as
9 biomass) that its own scientists identified as constituting a healthy population, NMFS selected a
10 rebuilding target biomass that is as much as ten times lower. Indeed, the selected rebuilding
11 target is so low that when the population falls to this biomass level, fishing in the primary
12 sardine fishery is prohibited under current management measures.

13 6. Then, when NMFS’s *own* analysis showed the rebuilding plan failed to rebuild
14 the population even to that artificially low level within the legal timeframe, NMFS simply
15 ignored these results and adopted Amendment 18 anyway.

16 7. To justify this unscientific rebuilding plan, NMFS analyzed the environmental
17 impacts and rebuilding potential—not based on the amount of sardine Amendment 18 will
18 allow fishermen to catch every year—but based on the assumption that fishermen will
19 voluntarily and consistently catch much lower levels equal to sardine landings in recent years.

20 8. The overfished state of the sardine population stems in part from NMFS’s failure
21 over the past decade to use the best available science—including peer-reviewed studies from its
22 own scientists—to set annual catch limits. Amendment 18 perpetuates rather than fixes these
23 problems.

24 9. In addition to requiring NMFS to rebuild overfished populations, the MSA also
25 requires NMFS to prevent overfishing. To do so, NMFS sets an overfishing limit that is
26 supposed to ensure that catch levels do not result in overfishing. But for years, NMFS has set
27 the overfishing limit and associated annual catch limits too high. NMFS’s own scientists have
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1 explained that the key assumptions used to calculate the overfishing limit and annual catch
2 limits, including how productive the sardine population is and what proportion of the sardine
3 population U.S. fishing vessels can sustainably catch, are overestimated, and have suggested
4 superior methods for determining these values. But despite numerous comments from Oceana
5 and others highlighting these flaws over the last decade, NMFS refused to correct course, even
6 as the population declined. Now that the population is overfished, NMFS still refuses to change
7 its management approach, implementing a rebuilding plan that uses the exact same method and
8 analysis.

9 10. In approving and implementing Amendment 18, NMFS also failed to fully
10 analyze the significant environmental impacts of failing to rebuild the sardine population for at
11 least half a century. Sardines are a key food source for multiple marine predators, including
12 species listed under the Endangered Species Act (“ESA”) like the humpback whale and marbled
13 murrelet. In fact, sardines were recently designated as part of the humpback whale’s critical
14 habitat. Sardines are also food for many commercially important fish species and are included
15 as important prey species in the essential fish habitat designations for salmon and highly
16 migratory species like striped marlin. Sardines’ high nutrient and energy content make them one
17 of a handful of uniquely important prey species for West Coast marine predators. Continuing to
18 implement management measures that keep Pacific sardine at very low abundance levels for
19 decades—as Amendment 18 will do—is likely to have serious repercussions on the entire West
20 Coast marine ecosystem.

21 11. Amendment 18 violated multiple legal obligations. First, NMFS violated the
22 MSA and Administrative Procedure Act (“APA”) by failing to identify a lawful, scientifically
23 valid rebuilding target for the sardine population. Second, NMFS failed to demonstrate based on
24 the best available science that Amendment 18 will rebuild the sardine population even to
25 NMFS’s irrationally low rebuilding target, in violation of the MSA and APA. Third, NMFS
26 failed to demonstrate based on the best available science that Amendment 18 will prevent
27 overfishing, in violation of the MSA and APA. Fourth, NMFS arbitrarily analyzed the
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1 environmental effects of expected fishing behavior rather than the agency action at issue—the
2 authorized catch limits—in violation of NEPA and the APA. Fifth, NMFS failed to analyze the
3 significant environmental impacts of failing to rebuild the sardine population for at least 48
4 years and failed to prepare an environmental impact statement, in violation of NEPA. Finally,
5 NMFS failed to analyze and minimize impacts to essential fish habitat for salmon and other
6 commercially important fish species, in violation of the MSA and APA.

7 12. By committing each of these actions and omissions, NMFS failed to comply with
8 the statutory requirements of the MSA and NEPA and acted in a manner that is arbitrary,
9 capricious, an abuse of discretion, or otherwise not in accordance with the law, in violation of
10 the APA. NMFS's actions and failures to act harm Oceana's members' interest in rebuilding
11 and maintaining a healthy and sustainable population of Pacific sardine and a healthy ocean
12 ecosystem. This harm will continue in the absence of action by the Court.

13 JURISDICTION AND VENUE

14 13. This action arises under the MSA, 16 U.S.C. §§ 1801–1884, and the APA, 5
15 U.S.C. §§ 701–706.

16 14. This Court has jurisdiction over this action pursuant to the MSA, which provides
17 that “[t]he district courts of the United States shall have exclusive jurisdiction over any case or
18 controversy arising under” the MSA. 16 U.S.C. § 1861(d). The MSA also provides that actions
19 taken by the Secretary of Commerce shall be subject to judicial review “if a petition for such
20 review is filed within 30 days after the date on which the regulations are promulgated or the
21 action is published in the Federal Register, as applicable.” 16 U.S.C. § 1855(f). NMFS approved
22 Amendment 18 on June 14, 2021, and published notice of the approval in the Federal Register
23 on June 24, 2021. Oceana is filing this Complaint within 30 days of NMFS's approval and
24 publication of Amendment 18.

25 15. This Court, further, has jurisdiction over this action pursuant to the APA, which
26 provides that final agency action is subject to judicial review. 5 U.S.C. §§ 701–706. NMFS's
27 approval of Amendment 18 is a “final agency action” subject to judicial review under the APA.
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1 21. Oceana and others have long urged the Pacific Fishery Management Council
2 (“Council”) and NMFS to fulfill their legal obligations to sustainably manage Pacific sardine.
3 Since 2007, Oceana and others have specifically requested that NMFS and the Council set more
4 precautionary catch limits, more explicitly account for predator needs in sardine management,
5 set more conservative harvest control rules, more directly consider foreign sardine catch in U.S
6 management, set harvest rates based on current ecological conditions, and use the best available
7 science to manage Pacific sardine.

8 22. Oceana’s members use and enjoy the oceans for numerous activities, including
9 fishing, ecotourism, wildlife observation, photography, scuba diving, snorkeling, boating,
10 swimming, beach walking, research, and study. Oceana’s members value and depend upon a
11 healthy marine environment for these activities. Oceana’s members also consume seafood
12 caught in the California Current Ecosystem. They are concerned about and directly affected by
13 environmental injury caused by unsustainable fishing in the U.S. West Coast fisheries resulting
14 in depletion of Pacific sardine and the predatory fish and wildlife that rely on the species to
15 grow and thrive. Injuries to Oceana’s members include injuries to their consumption and
16 recreational and commercial use of fish populations, as well their interest in healthy populations
17 of seals, sea lions, brown pelicans, marbled murrelets, humpback whales, sharks, dolphins, and
18 other wildlife.

19 23. The above-described aesthetic, conservation, recreational, commercial, scientific,
20 educational, and other interests of Oceana and its members have been, are being, and, unless the
21 relief prayed for in this Complaint is granted, will continue to be adversely affected and
22 irreparably injured by NMFS’s failure to protect and rebuild Pacific sardine through the
23 unlawful Amendment 18. These injuries are actual and concrete and would be redressed by the
24 relief Oceana seeks here. Oceana has no adequate remedy at law.

25 24. The Defendants in this action are:

26 a. GINA RAIMONDO. Ms. Raimondo is sued in her official capacity as
27 Secretary of Commerce. The Secretary of Commerce is ultimately responsible for overseeing
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1 the proper administration and implementation of the MSA in connection with federal fisheries
2 management actions, including provisions related to the duty to end and prevent overfishing,
3 rebuild overfished populations, account for ecosystem needs and base all conservation and
4 management measures on the best available science.

5 b. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. The
6 National Oceanic and Atmospheric Administration is an agency of the United States
7 Department of Commerce with supervisory responsibility for NMFS. The Secretary of the
8 Department of Commerce delegated responsibility to ensure compliance with the MSA to the
9 National Oceanic and Atmospheric Administration, which in turn sub-delegated that
10 responsibility to NMFS.

11 c. NATIONAL MARINE FISHERIES SERVICE. NMFS is an agency of the
12 United States Department of Commerce that has been delegated the primary responsibility to
13 ensure that the requirements of the MSA and other applicable laws are followed and enforced,
14 including the requirements to rebuild overfished populations, base conservation and
15 management measures on the best scientific information available, prevent and end overfishing,
16 and minimize impacts on essential fish habitat. In that capacity, NMFS must review fishery
17 management plans and amendments to those plans, and issue implementing regulations.

18 **LEGAL BACKGROUND**

19 **MSA Framework for Preventing Overfishing**

20 25. The MSA governs the conservation and management of fisheries in U.S.
21 territorial waters and in the exclusive economic zone, which extends from the boundaries of
22 state waters (typically 3 miles from shore) to 200 miles offshore or to an international boundary
23 with neighboring countries. 16 U.S.C. §§ 1801(b)(1), 1802(11). The MSA creates eight regional
24 fishery management councils and requires them to prepare fishery management plans for all
25 fisheries under their authority that require conservation and management. *Id.* § 1852(a), (h)(1).
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1 The Pacific Fishery Management Council is responsible for developing fishery management
2 plans and amendments for the Coastal Pelagic Species fishery.

3 26. All fishery management plans and amendments developed by the councils and
4 regulations implementing fishery management plans and amendments are subject to final
5 review and approval by NMFS to ensure that they comply with the requirements of the MSA, as
6 well as with other applicable laws and requirements. 16 U.S.C. § 1854(a), (b).

7 27. The MSA requires that fishery management plans, fishery management plan
8 amendments, and any regulations promulgated to implement such fishery management plans be
9 consistent with the “National Standards” for fishery conservation and management. 16 U.S.C. §
10 1851(a).

11 28. National Standard One of the MSA requires that “[c]onservation and management
12 measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield
13 from each fishery.” 16 U.S.C. § 1851(a)(1). The MSA further requires fishery management
14 plans to “contain the conservation and management measures . . . necessary . . . to prevent
15 overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term
16 health and stability of the fishery.” *Id.* § 1853(a)(1)(A).

17 29. The MSA defines the terms “overfishing” and “overfished” to mean “a rate or
18 level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum
19 sustainable yield on a continuing basis.” 16 U.S.C. § 1802(34).

20 30. The MSA and its implementing regulations emphasize the importance of
21 protecting marine ecosystems and making decisions about fisheries in the context of the health
22 and long-term sustainability of the marine environment. The Act requires that fisheries be
23 managed to achieve “optimum yield,” 16 U.S.C. §§ 1801(b)(4), 1851(a)(1), which is defined as
24 the amount of fish that “will provide the greatest overall benefit to the Nation, particularly with
25 respect to food production and recreational opportunities, and taking into account the protection
26 of marine ecosystems,” and “is prescribed on the basis of the maximum sustainable yield from
27 the fishery, as reduced by any relevant economic, social, or ecological factor.” *Id.* §
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1 1802(33)(A)–(B). For an overfished population like Pacific sardine, the Act also specifies that
2 “optimum” yield must “provide[] for rebuilding to a level consistent with producing maximum
3 sustainable yield.” *Id.* § 1802(33)(C). In other words, measures must achieve a biomass level
4 that is large and robust enough to support a sustainable fishery and the marine ecosystem.

5 31. National Standard Two of the MSA requires that “[c]onservation and
6 management measures shall be based upon the best scientific information available.” 16 U.S.C.
7 § 1851(a)(2). “Conservation and management measures” include “all of the rules, regulations,
8 conditions, methods, and other measures” to “rebuild, restore, or maintain . . . the marine
9 environment,” including annual catch limits, acceptable biological catch, and objective and
10 measurable criteria for determining when a stock is overfished, such as the overfishing limit. *Id.*
11 §§ 1802(5); 1853(a)(1), (10), (15); 50 C.F.R. § 600.310(e)(2)(i)(A), (D).

12 32. In 2006, Congress enacted the Magnuson-Stevens Reauthorization Act, which
13 among other things, established a system of interrelated management measures and reference
14 points intended to prevent and end overfishing. Pursuant to the MSA, 16 U.S.C. § 1851(b),
15 NMFS promulgated guidelines that reflect the agency’s interpretation of the Act’s requirements
16 to prevent overfishing and rely on the best available science. 50 C.F.R. § 600.305(a)(3). These
17 guidelines provide further detail on how NMFS and the councils establish required management
18 measures to prevent and end overfishing. Of relevance here, this includes establishing and
19 revising three key measures: overfishing limits, acceptable biological catches, and annual catch
20 limits.

21 33. To prevent overfishing, NMFS must first establish an “overfishing limit” that
22 estimates the catch level (expressed in numbers or weight of fish) above which overfishing will
23 occur. 50 C.F.R. § 600.310(e)(2)(i)(D).

24 34. NMFS must then specify the “acceptable biological catch” for each stock, which
25 provides an upper limit on annual catch that accounts for scientific uncertainty in estimating the
26 overfishing limit, as well as any other scientific uncertainty. 50 C.F.R. § 600.310(f)(1)(ii).
27 Fishery managers “must articulate how [acceptable biological catch] will be set compared to the
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[overfishing limit] based on the scientific knowledge about the stock . . . and taking into account scientific uncertainty” and “should consider reducing fishing mortality as stock size declines . . . and as scientific uncertainty increases.” *Id.* § 600.310(f)(2)(ii).

35. The function of acceptable biological catch is to ensure that any uncertainty in estimating the overfishing limit does not result in overfishing.

36. Each fishery management plan must “establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.” 16 U.S.C. § 1853(a)(15). NMFS’s Guidelines specify that annual catch limits may not be set at values higher than the acceptable biological catch and in most instances should be set lower. 50 C.F.R. § 600.310(f)(4)(i).

NMFS Must Rebuild Overfished Populations to Healthy Levels that Support Sustainable Fishing and Ecosystem Needs

37. The MSA requires the Secretary to report annually to the Congress on the status of fish populations. In these reports, the Secretary must identify fish populations that are overfished as well as fish populations that are subject to overfishing. 16 U.S.C. § 1854(e)(1); 50 C.F.R. § 600.310(j)(1).

38. Within two years after NMFS designates a population as overfished, the relevant council must develop a fishery management plan, fishery management plan amendment, or regulations to end overfishing “immediately” and rebuild the population. 16 U.S.C. § 1854(e)(3)(A). This plan, amendment, or regulation (the “rebuilding plan”) must specify a time for rebuilding the population that is “as short as possible,” taking into account, among other things, the status and biology of the overfished species. *Id.* § 1854(e)(4)(A)(i). The Act requires that the rebuilding period may not exceed 10 years, unless the biology of the stock, other environmental conditions, or management measures under an international agreement dictate otherwise. *Id.* § 1854(e)(4)(A)(ii).

39. To determine a target rebuilding timeframe based on these considerations, NMFS first calculates the outer bounds of that timeframe: the amount of time it would take to rebuild the population in the absence of any fishing pressure, referred to as “Tmin,” and the maximum amount of time NMFS may authorize to rebuild an overfished population, referred to as “Tmax.” 50 C.F.R. § 600.310 (j)(3)(i)(A)–(B).

40. NMFS then chooses a target timeframe for rebuilding that is between Tmin and Tmax, after taking into account the considerations described above (the biology of the stock, other environmental conditions, or management measures under an international agreement). 50 C.F.R. § 600.310 (j)(3)(i); 16 U.S.C. § 1854(e)(4)(A)(ii). When taking into account these conditions to determine a rebuilding timeframe, NMFS may not prioritize short-term economic considerations over conservation goals. *Nat. Res. Def. Council v. NMFS*, 421 F.3d 872, 879 (9th Cir. 2005); *See also Nat. Res. Def. Council, Inc. v. Daley*, 209 F.3d 747, 753 (D.C. Cir. 2000). Furthermore, NMFS may only use economic considerations to select one management plan over another if the conservation outcomes of the two plans are similar. *See id.* (stating “under the . . . [MSA], the Service must give priority to conservation measures. It is only when two different plans achieve similar conservation measures that the Service takes into consideration adverse economic consequences.”).

41. NMFS’s guidelines specify that NMFS must rebuild the overfished population to a biomass level capable of achieving maximum sustainable yield over the long-term—in other words, a fish population level capable of supporting a long-term sustainable fishery, referred to as “biomass at maximum sustainable yield” or “B_{MSY}.” 50 C.F.R. § 600.310(j)(3)(i)(A).

42. NMFS’s guidelines define “maximum sustainable yield” as “the largest long-term average catch or yield that can be taken from a stock . . . under prevailing ecological, environmental conditions and fishery technological characteristics . . . and the distribution of catch among fleets.” 50 C.F.R. § 600.310(e)(1)(i).

43. NMFS must ensure that the rebuilding plan achieves at least a 50 percent chance of rebuilding to the long-term, healthy biomass within the specified timeframe. 50 C.F.R. §

600.310(j)(i)(3)(A). Indeed, a rebuilding plan with a less than a coin's flip chance of success is arbitrary and capricious and not in accordance with the law. *See Nat. Res. Def. Council, Inc. v. Daley*, 209 F.3d at 754 (invalidating a fishery management plan with a less-than-50 percent chance of success as arbitrary and capricious).

44. If, within two years after NMFS identifies a population as overfished, the relevant council fails to submit a rebuilding plan that rebuilds the population and prevents overfishing, NMFS must prepare a rebuilding plan within nine months. 16 U.S.C. § 1854(e)(5).

NMFS Must Identify and Protect Essential Fish Habitat

45. The MSA recognizes that healthy fish populations depend on healthy habitat. 16 U.S.C. § 1801(a)(9), (b)(7). The Act thus requires NMFS to designate and conserve habitat components that are necessary for spawning, breeding, feeding, or growth to maturity as "essential fish habitat" ("EFH"). *Id.* §§ 1802(10), 1853(a)(7), 1855(b)(1).

46. The MSA requires councils to "prevent, mitigate, or minimize any adverse effects from fishing, to the extent practicable, if there is evidence that a fishing activity adversely affects . . . [essential fish habitat] in a manner that is more than minimal and not temporary in nature." 50 C.F.R. § 600.815(a)(2)(ii); *see also* 16 U.S.C. § 1853(a)(7) (statutory requirement). Amendments to fishery management plans "must ensure that the FMP continues to minimize to the extent practicable adverse effects on EFH caused by fishing." 50 C.F.R. § 600.815(a)(2)(ii). Adverse effects mean "any impact that reduces quality and/or quantity of" essential fish habitat. *Id.* § 600.810(a). Actions that reduce the availability of prey species, including removals by fishing, can constitute an adverse effect on essential fish habitat. *Id.* § 600.815(a)(7).

The National Environmental Policy Act

47. Enacted by Congress in 1969, NEPA establishes a national policy to "encourage productive and enjoyable harmony between man and his environment" and "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man." 42 U.S.C. § 4321.

1 48. NEPA has a dual purpose. “First, it places upon [a federal] agency the obligation
2 to consider every significant aspect of the environmental impact of a proposed action. Second, it
3 ensures that the agency will inform the public that it has indeed considered environmental
4 concerns in its decisionmaking process.” *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062,
5 1066 (9th Cir. 2002) (alteration in original).

6 49. The Council on Environmental Quality promulgated regulations implementing
7 NEPA, which are “binding on all Federal agencies.” 40 C.F.R. § 1500.3; *see id.* §§ 1500.1–
8 1508.1¹

9 50. Under NEPA, a federal agency is required to prepare an environmental impact
10 statement (“EIS”) for any major federal action significantly affecting the human environment.
11 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1501.3(a)(3).

12 51. An agency must accurately and transparently analyze the environmental impact of
13 its entire “action.” 42 U.S.C. § 4332; 40 C.F.R. § 1501.3(b). This analysis must be based on
14 accurate, high quality information. 40 C.F.R. § 1502.23 (agencies must “ensure the professional
15 integrity, including scientific integrity, of the discussions and analyses in environmental
16 documents”). NEPA also requires that agencies inform both the decision-maker and the public
17 about the environmental effects of the government’s decision-making. *Dep’t of Transp. v. Pub.*
18 *Citizen*, 541 U.S. 752, 768 (2004).

19 52. If an action is not likely to have a significant impact on the environment or the
20 environmental impact is unknown, agencies must prepare an environmental assessment (“EA”).
21 40 C.F.R. § 1501.3(a)(2). If the EA demonstrates that the action is likely to significantly affect
22 the environment, then the agency must prepare an environmental impact statement (“EIS”). *Id.*,
23 1501.5(c). If the EA demonstrates that the action is not likely to significantly affect the
24 environment, then the agency must prepare a finding of no significant impact (“FONSI”). 40
25 C.F.R. §§ 1501.6(a), 1501.5(c).

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27 ¹ CEQ’s recently-revised NEPA regulations are currently being challenged in *Alaska Cmty.*
28 *Action on Toxics v. CEQ*, No. 3:20-cv-05199-RS (N.D. Cal. filed July 29, 2020).

53. To determine whether an action is likely to have a significant impact on the environment and thus whether an EIS is required, agencies must 1) “analyze the potentially affected environment” and 2) analyze the “degree of the effects of the action.” 40 C.F.R. § 1501.3(b). When analyzing the potentially affected environment, the agency should consider “the affected area . . . and its resources, such as listed species and designated critical habitat under the Endangered Species Act.” *Id.* § 1501.3(b)(1). When analyzing the degree of the effects of the action, the agency should consider 1) short and long-term effects; 2) beneficial and adverse effects; 3) effects on public health and safety; and 4) effects that would violate Federal, State, Tribal, or local law protecting the environment. *Id.* § 1501.3(b)(2).

54. NEPA requires that agencies take a “hard look” at the likely effects of the proposed action, which includes considering all foreseeable direct and indirect impacts as well as cumulative impacts. *Ctr. for Biological Diversity v. Salazar*, 695 F.3d 893, 916–17 (9th Cir. 2012); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); *see* 42 U.S.C. § 4321.

FACTUAL BACKGROUND

Pacific Sardine Biology and Population Fluctuations

55. The Pacific sardine is a small, nutrient and energy rich fish that ranges from southeastern Alaska to Baja California, Mexico. Two aspects of the sardine’s biology make it vulnerable to overfishing. First, like many other key prey (or “forage”) fish species, the Pacific sardine travels in schools, making it easy to locate and catch in large numbers even when its overall population level is low. Second, the Pacific sardine population regularly experiences large fluctuations, increasing and decreasing over periods of approximately 60 years. These large fluctuations render sardines and other forage fish more vulnerable to overfishing, collapse, and delayed rebuilding than other fish species. Recent studies of forage species around the world, including sardines, found that fishing these species during a period of decline can increase the rate and magnitude of population collapses, and delay population recovery after a

1 collapse. Even relatively moderate changes in fishing levels can result in significant changes in
2 forage species abundance and their local availability to predators, particularly during times
3 when the species' productivity is already low due to environmental conditions and diminished
4 population levels.

5 56. At times, Pacific sardines have been among the most abundant fish species in the
6 California Current Ecosystem. In the 1930s and 40s, sardines supported the largest fishery in the
7 western hemisphere with a biomass of nearly four million tons. Sardine landings peaked in
8 1936–37, and subsequently began to decline. As early as 1929, fishery biologists were urging
9 the state of California, the management entity at the time, to regulate the fishery. But this advice
10 went unheeded. By the early 1950s, excessive fishing pressure combined with low sardine
11 productivity led to the population's collapse. The California legislature finally placed an
12 emergency two-year moratorium on commercial fishing in 1967 but allowed other fishing
13 sectors to continue catching sardines. For example, managers allowed incidental catch of
14 sardine of up to 15 percent by weight per fishing haul. In 1969, the legislature passed a law that
15 allowed 250 tons of sardine to be landed each year for the purpose of dead bait. Even under this
16 relatively low amount of fishing pressure, the population continued to decline. In 1974, decades
17 after the collapse, the legislature finally instituted a full moratorium on all commercial sardine
18 catch.

19 57. Scientists believe that in 1977, ocean conditions became more favorable for
20 sardines, but their recovery was slow because the population had reached such low levels.
21 Fishery managers started to allow small sardine catch levels for the live and dead bait fishery in
22 1984, followed by a 1,000 metric ton quota for the directed sardine fishery in 1986. Even with
23 very low allowable catch levels, the sardine population took until the 1990s to recover, because
24 the population had been driven to such a low abundance level before regulators implemented
25 necessary protective measures. Even then, the population never came close to the abundance
26 levels seen in the 1930s and 1940s.
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58. Productive ocean conditions in the 1990s and early 2000s fostered high sardine reproduction and survival to reproductive maturity. As a result, the sardine population increased steadily until it peaked at around 1.6 million metric tons (“mt”) in 2001, followed by a short drop and another peak in 2006. After 2006, the population began to rapidly decline.

59. In 2012, NMFS scientists published a peer-reviewed study forecasting the imminent collapse of the sardine population due to the combination of unfavorable ocean conditions and excessive fishing pressure. The scientists warned that unless NMFS and the Council reduced fishing pressure on the declining sardine population, they risked recreating the same sort of dramatic population collapse that closed the sardine fishery for decades during the prior century and shuttered the once famous fish factories of Monterey’s Cannery Row.

60. Instead of heeding this warning, NMFS and the Council ignored and even dismissed this information and continued to authorize fishing levels well above what the declining population could support. As depicted in the graph below, Pacific sardines declined by 98 percent between 2006 and 2020.

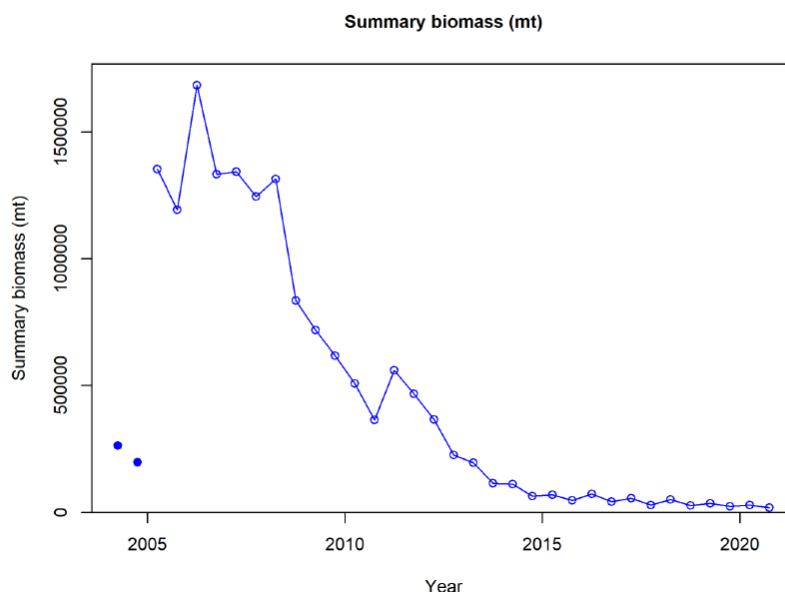


Figure 1. Source: Peter T. Kuriyama et al., *Assessment of the Pacific Sardine Resources in 2020 for U.S. Management in 2020–2021* at xi (May 2020).

61. In 2012, 2013, and 2014, as the population continued to decline, the NMFS-authorized U.S. fishery alone caught sardine well above the maximum sustainable yield fishing rate identified by NMFS. The graph below depicts the U.S. catch rate (orange), the Mexico and U.S. combined catch rate (yellow), and the catch rate that NMFS identified as the rate that would result in long-term maximum sustainable yield (blue).

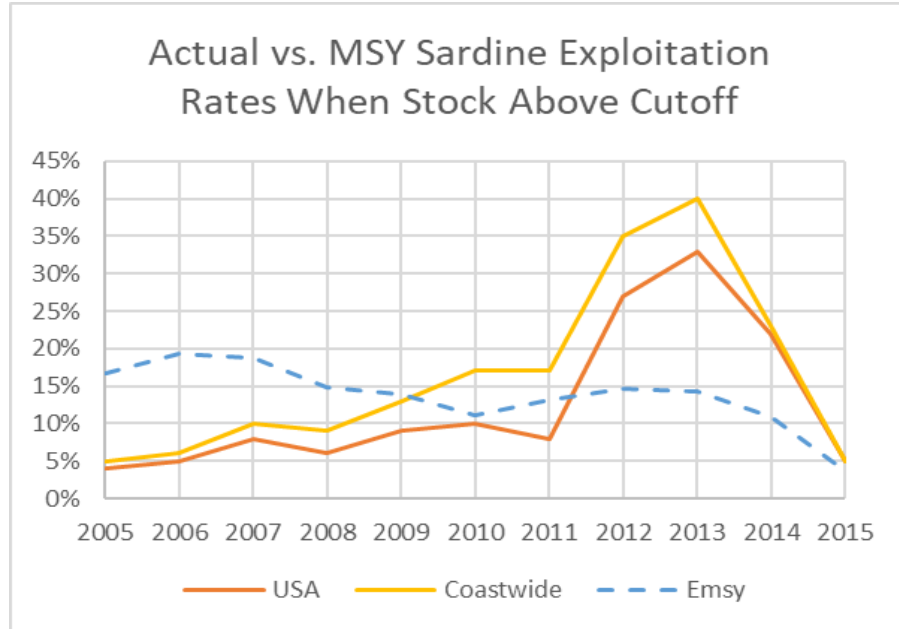


Figure 2. Graph is compiled from data contained in Kuriyama et al., *supra*, Fig. 1.

As demonstrated in the graphs above, since the U.S. catch rate exceeded the maximum sustainable yield catch rate, NMFS was allowing overfishing to occur at the exact moment the population was collapsing.

62. In addition, Mexico continued to fish at unsustainably high levels in the absence of any efforts to coordinate management between the two nations, further exacerbating the decline.

63. In 2015, NMFS closed the primary directed commercial fishery following a request for emergency action by Oceana, based on NMFS's own estimate that the population had fallen below a biomass of 150,000 mt—the biomass identified under the Coastal Pelagic

1 Species Fisheries Management Plan (“CPS FMP”) that triggers the closure of the primary
2 sardine fishery.

3 64. However, like fishery managers did during the prior sardine collapse, NMFS
4 continued to authorize significant levels of sardine catch for use as live bait, as incidental catch
5 in other fisheries, as well as for research under Exempted Fishing Permits. NMFS allowed these
6 remaining fisheries to catch 3,329 to 8,000 mt per year between 2016 and 2021, even as the
7 sardine population continued to decline.

8 65. By July 2020, the Pacific sardine population reached a low of 28,276 mt. In the
9 spring of 2021, when NMFS approved Amendment 18, NMFS scientists projected that Pacific
10 sardine biomass would reach a new, critical low of just 14,011 mt in July 2021. Once again,
11 instead of heeding NMFS’s scientists and using the 2021 estimate to set catch limits for 2021–
12 22, NMFS and the Council chose instead to rely on the still very low but more optimistic 2020
13 estimate, which was more than double the 2021 estimate.

14 **Management of Sardines Under the Coastal Pelagic Species Fisheries Management Plan**

15 66. NMFS manages Pacific sardine under the CPS FMP, along with other forage fish
16 such as northern anchovy and Pacific mackerel. The coastal pelagic species fishery operates off
17 the coasts of California, Oregon, and Washington. Fishing for sardine is managed under several
18 categories: major directed commercial fishing (i.e., targeting of sardine by the primary
19 commercial fishery); directed fishing for use as live bait; minor directed fishing by small-scale
20 fishermen; directed fishing by Tribes; directed fishing under Exempted Fishing Permits; and
21 incidental catch (i.e., sardine caught in the course of fishing for other species).

22 67. The basic framework for managing Pacific sardine was established in 2000 via
23 Amendment 8 to the CPS FMP and revised somewhat in 2013 via Amendment 13.

24 68. Under the CPS FMP management framework, the Council and NMFS are
25 supposed to reduce fishing pressure as sardine biomass declines. To this end, the FMP identifies
26 biomass levels that trigger the implementation of protective management measures. For
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1 example, the CPS FMP identifies a “Cutoff” sardine population biomass of 150,000 mt. When
2 sardine biomass falls to the Cutoff level of 150,000 mt or below, the CPS FMP requires the
3 major directed sardine fishery to close, although all other fishery sectors that catch sardines can
4 continue. The purpose of the Cutoff is to protect the population when biomass is low and
5 provide a buffer of spawning stock that can be used to rebuild if the population becomes
6 overfished. Another purpose of the Cutoff is to ensure that commercial fishing leaves enough
7 sardines in the water for the many marine predators that depend on sardines for food.

8 69. When the sardine population is above the Cutoff biomass, the CPS FMP employs
9 a mechanism for setting annual catch limits relative to the size of the sardine population that is
10 supposed to lower fishing pressure when the population declines and maintain the minimum
11 sardine biomass as a protective buffer. The CPS FMP contemplates that, “[i]f the CUTOFF is
12 greater than zero, then the harvest rate . . . declines as biomass declines. By the time BIOMASS
13 falls as low as CUTOFF, the harvest rate is reduced to zero.” Pac. Fishery Mgmt. Council, *CPS*
14 *FMP as Amended through Amendment 17* at 38 (June 2019).

15 70. Ironically, the CPS FMP fails to include the same sort of safeguards to lower
16 catch rates or maintain minimum population levels once the Pacific sardine population falls
17 below the 150,000 mt Cutoff threshold. Instead, when the population is too low to support the
18 major directed fishery (i.e., below 150,000 mt), the CPS FMP allows NMFS to simply set
19 annual catch limits equal to the acceptable biological catch, which is the maximum allowed
20 under the law.

21 71. While NMFS could have implemented more conservative annual catch limits in
22 accordance with its own scientists’ recommendations, it chose not to do so. Since 2015, NMFS
23 set annual catch limits for all fisheries (except the major directed fishery that closed in 2015)
24 under this less protective approach. Instead of the “harvest rate being reduced to zero” when the
25 population fell below the Cutoff as the CPS FMP prescribes, NMFS started allowing a larger
26 proportion of the biomass to be caught than ever before, even as the population was declining to
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1 very low abundance levels. Notably, this less protective method for setting annual catch limits is
2 the method NMFS intends to continue with Amendment 18 throughout the rebuilding period.

3 72. In addition to identifying a Cutoff biomass level, the CPS FMP also identifies the
4 level of biomass below which the sardine population is overfished and thus the capacity of the
5 stock to produce maximum sustainable yield on a continuing basis has been jeopardized. The
6 CPS FMP sets this threshold, known as the minimum stock size threshold, at 50,000 mt. When
7 the Pacific sardine population falls below the 50,000 mt, the CPS FMP reduces the amount of
8 sardine fishermen can catch incidentally when targeting other species. Specifically, NMFS
9 allows fishermen targeting other fish to land a certain percentage of sardines in each haul, which
10 is called an incidental catch allowance. When the sardine population falls below 50,000 mt, the
11 CPS FMP decreases the maximum incidental catch allowance from 40 percent of each haul to
12 20 percent. Since the population fell below minimum stock size threshold in 2019, NMFS has
13 set the incidental catch allowance at 20 percent, the maximum authorized under the CPS FMP.

14 73. In April 2019, NMFS completed a stock assessment that concluded the Pacific
15 sardine population had fallen well below the overfished threshold of 50,000 mt.

16 74. Prior to 2019, the CPS FMP contained an additional protective measure that
17 prohibited intentionally fishing for sardine for use as live bait when the Pacific sardine
18 population fell below 50,000 mt. Instead of keeping this protective measure in place when it
19 learned the sardine population had fallen below the overfished threshold, NMFS responded by
20 *removing* this protective measure in June 2019 via Amendment 17. As a result, directed sardine
21 fishing continues in the live bait fishery even though the population remains well below the
22 minimum stock size threshold. Under current, status quo management, the live bait fishery
23 remains open no matter how low sardine biomass falls. Since 2015, the live bait fishery has
24 consistently comprised the largest proportion (50–90 percent) of total catch.

25 75. On July 9, 2019, NMFS officially notified the Council and public that Pacific
26 sardine was overfished.
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Amendment 18 Continues Failed Status Quo Management

76. After designating the species as overfished, NMFS, in collaboration with the Pacific Fisheries Management Council, began to develop a rebuilding plan (Amendment 18) for the Pacific sardine as required under the MSA. Amendment 18 relies on a model called “Rebuilder” to identify a minimum timeframe for rebuilding of 12 years, a target timeframe of 14 years, and a maximum timeframe of 24 years. Based on the results of the model, NMFS also identifies a woefully low biomass level of 150,000 mt as the rebuilding target.

77. A biomass of 150,000 mt is the Cutoff that triggers the closure of the major directed commercial fishery under the CPS FMP. NMFS’s rebuilding analysis fails to explain how a population level that NMFS itself identifies as the trigger for closing the primary sardine fishery, and the minimum necessary to ensure the population can rebuild to healthy levels, is also somehow capable of producing maximum sustainable yield for that fishery and others.

78. Indeed, NMFS’s rebuilding target of 150,000 mt conflicts starkly with and is far lower than what the best available scientific information indicates is a healthy Pacific sardine population capable of producing long-term maximum sustainable yield. Pacific sardine has reached population levels far greater than 150,000 mt, reaching an abundance of four million tons in the 1930s and greater than one million tons in the early 2000s. Moreover, NMFS’s own scientists identify Pacific sardine biomass levels that support maximum sustainable yield (referred to as “B_{MSY}”) far greater than 150,000 mt. NMFS scientists and experts from the Council’s Science and Statistical Committee estimate B_{MSY} values ranging from 572,000 mt to more than 1,247,000 mt.² NMFS’s estimate of B_{MSY} in Amendment 8, the CPS FMP’s original sardine rebuilding analysis, is 1.5 million mt. None of these estimates are anywhere near as low

² Oceana consistently refers to biomass as the combined weight of sardines in the water that are age one year or older, which is the definition used in management formulas to set catch. To maintain this consistency, the latter estimate of 1,247,000 mt is converted from the published critical stock spawning biomass of 740,000 mt which is measured in the combined weight of sardines that have reached spawning age, two years or older. Oceana converted spawning biomass to age one and older biomass using the ratio between the 2020 stock assessment’s projection of spawning stock to age one biomass for July 2020.

1 as NMFS's so-called rebuilding target. NMFS's selected rebuilding target is thus inexplicably
2 low and arbitrarily conflicts with the best available science.

3 79. NMFS's irrationally low rebuilding target is a byproduct of the agency's reliance
4 on a model (Rebuilder) that is fundamentally ill-suited to analyze sardine population dynamics.
5 The model is designed to analyze groundfish, which are long-lived and experience relatively
6 constant productivity over time. NMFS therefore bases its rebuilding analysis on a constant
7 level of productivity for the sardine population over the next several decades. In contrast, the
8 best available science shows that sardine are short-lived and their populations experience wide
9 fluctuations in abundance and productivity. Compounding this problem, the rebuilding analysis
10 only uses data from 2005 to 2018, when the population was declining and experiencing low
11 productivity, even though the best available science indicates that the Pacific sardine are likely
12 to shift to a high productivity state sometime in the next two decades.

13 80. A model that can only capture one part of the sardine productivity cycle cannot
14 accurately estimate an appropriate rebuilding target. Indeed, the EA recognizes this flaw,
15 stating:

16 modeling only this time period [2005–2018] was inadequate to capture the biological
17 pattern of a stock that is known to go through boom and bust cycles driven by
18 environmental conditions. This stock exhibited much greater productivity and recruitment
19 in the years leading up to its most recent peak in abundance in 2006, and this occurred in
the years after it came under federal management in the year 2000. These years are not
covered by the modeling.

20 Pac. Fishery Mgmt. Council & NMFS, *Pacific Sardine Rebuilding Plan Final Environmental*
21 *Assessment* at 11 (2021) [hereinafter Final EA].

22 81. NMFS's approach in the EA represents an unexplained deviation from NMFS's
23 previous sardine population modeling contained in Amendment 8 to the CPS FMP and the most
24 recent management strategy evaluations used by NMFS and the Council as the basis for
25 management, both of which include high productivity periods in their analyses in accordance
26 with the best available science. Thus, even though superior models exist that are specifically
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1 designed for sardines, NMFS uses a model designed for groundfish that it knows is not realistic
2 for sardines.

3 82. NMFS's decision to use a model and a timeframe that cannot accurately simulate
4 sardine population dynamics is not merely an academic problem; it also has serious
5 environmental and economic consequences. NMFS's unrealistic model allows the agency to
6 choose an inadequate and low rebuilding target that cannot support the many marine predators
7 dependent on sardine for food. Likewise, under the current management regime, the rebuilding
8 target is also incapable of supporting the primary commercial fishery.

9 83. Despite recognizing that the model is fundamentally ill-suited to analyze Pacific
10 sardine population dynamics, NMFS nonetheless asserts it is the best available science and uses
11 it to analyze three separate management alternatives. Alternative 1, or status quo management,
12 is equivalent to a no action alternative and retains the existing management measures under the
13 CPS FMP, including setting annual catch limits up to the acceptable biological catch.
14 Alternative 2 prohibits all sardine catch across U.S. fisheries. Alternative 3 sets annual catch
15 limits for all U.S. fisheries at five percent of the most recent sardine biomass estimate.³ NMFS
16 adopts Alternative 1, which is the Council's preferred alternative, as the sardine rebuilding plan
17 in Amendment 18.

18 84. According to NMFS's own analysis, the catch limits authorized by status quo
19 management (and maintained by Amendment 18) do not rebuild Pacific sardine to the identified
20 rebuilding target of 150,000 mt within the target timeframe of 14 years—or even within its
21 maximum timeframe (Tmax) of 24 years. Indeed, NMFS's analysis finds that the status quo
22 authorized catch levels allowed under Amendment 18 are not likely to rebuild the population in
23

24 ³ NMFS analyzed all three alternatives under two different productivity scenarios based on a
25 data set from 2005–2018, which NMFS termed the high productivity scenario and a data set
26 from 2010–2018, which NMFS termed the low productivity scenario. In reality, both scenarios
27 represent low productivity scenarios as they exclude pre-2005 data when sardines were in a high
28 productivity state. As stated above, sardines have been declining in abundance since 2006. In
analyzing Amendment 18, NMFS relied only on the 2005–2018 data set, or the so-called “high
productivity scenario”.

1 the entire 30-year period analyzed. As the EA states: “under Alternative 1 Status Quo
2 Management, when the full [acceptable biological catch] is assumed to be taken, there is never a
3 greater than 50 percent probability that the stock will rebuild to the selected rebuilding biomass
4 target” by 2050, the last year modeled. Final EA at 14.

5 85. In fact, one of the Council’s advisory bodies, the CPS Management Team,
6 presented an analysis of NMFS’s model showing that the adopted Alternative 1 (now
7 Amendment 18) does not have a 50 percent chance of rebuilding until 2068, a 48-year
8 rebuilding period that is double the maximum timeframe allowed under the MSA. This failure
9 to rebuild within the legal timeframe is even more egregious because, as discussed above,
10 NMFS’s rebuilding target is 3 to 10 times lower than the level NMFS’s own scientists identify
11 as appropriate.

12 86. Alternative 1’s failure to rebuild is no surprise. In reality, Alternative 1 is no more
13 than existing, status quo management measures that NMFS relabels as a rebuilding plan.
14 Indeed, the EA recognizes this fact, noting “[t]he environmental effects of no action are
15 identical to those described for Alternative 1 and, therefore the no action alternative is not
16 discussed further.” Final EA at 7. Tellingly, the EA also states that a “‘no action’ alternative is
17 not adopting a rebuilding plan, which would not meet the requirements of the MSA.” Final EA
18 at 7. NMFS attempts to evade that result by simply calling the no action alternative “Alternative
19 1” and proposing it as a rebuilding plan.

20 87. In sum, NMFS adopts status quo management as its so-called rebuilding plan in
21 Amendment 18 even though the best available science shows that continuing the same
22 management that contributed to the population’s decline does not result in its rebuilding. Rather
23 than changing course and selecting a new, more effective set of measures as its rebuilding plan,
24 NMFS attempts to move the goalpost by selecting a biologically inadequate rebuilding target.
25 And rather than changing course when its own analysis reveals that the status quo management
26 alternative does not reach even that low target, NMFS simply adopts the irrational assumption
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that the catch limits Amendment 18 authorizes are irrelevant to determining whether Amendment 18 will rebuild the sardine population, as discussed below.

NMFS Fails to Analyze the Impacts of the Catch Limits Authorized Under Amendment 18

88. Faced with its own analysis showing that the annual catch levels authorized by Amendment 18 will not achieve even its unlawfully low rebuilding target, NMFS attempts to justify selecting the status quo alternative based on the assumption that fishermen will simply not catch as many fish as NMFS allows them to catch. Instead, NMFS analyzes Alternative 1 as if catch levels will instead remain at recent levels, around 2,200 mt per year, throughout the rebuilding period.

89. Amendment 18, however, allows catch levels far in excess of 2,200 mt. The chart below shows the acceptable biological catch and the annual catch limits for Pacific sardine over the past five years, when the population was below 150,000 mt. The values in the acceptable biological catch column show the maximum amount of catch NMFS could have authorized over the past five years under status quo management, the same management regime as Amendment 18. Thus, the environmental impacts and rebuilding potential of catch levels equal to the acceptable biological catch are what NMFS *should* have analyzed (but failed to) in the EA.

Year	Acceptable Biological Catch (the maximum catch limit NMFS can authorize in mt)	Annual Catch Limit (the catch limit NMFS did authorize in mt)
2016–17	19,236	8,000
2017–18	15,479	8,000
2018–19	9,436	7,000
2019–20	4,514	4,000
2020–21	3,329	3,329

Figure 3. Data for years 2016–2020 are from Kuriyama et al., *supra*, Fig. 1.; Data for years 2020–2021 comes from 86 Fed. Reg. 36237 (Jul. 6, 2021).

As demonstrated in the chart above, NMFS can authorize (and has authorized) catch limits far higher than the assumed 2,200 mt level. But based on the assumption that U.S. catch levels will stay at 2,200 mt rather than at the level NMFS authorizes, NMFS concludes the stock will

1 rebuild within a 17-year timeframe.

2 90. Notably, NMFS does not include an alternative that *limits* authorized sardine
3 catch to 2,200 mt per year and does not limit catch to recent levels under Amendment 18.

4 91. NMFS also rationalizes rejecting its own analysis of Alternative 1 by stating that
5 some portion of U.S. annual sardine landings come from the southern subpopulation of Pacific
6 sardines rather than the overfished northern subpopulation, even though the CPS FMP does not
7 recognize two sardine populations and manages sardine as a single population. NMFS asserts
8 that because recent annual landings from the northern subpopulation have been lower than the
9 authorized level (only 472 mt), a constant U.S. catch at this lower level allows the population to
10 rebuild in 14 years. But once again, NMFS does not include an alternative to limit catch from
11 the northern subpopulation to 472 mt and does not limit catch to this lower level under
12 Amendment 18.

13 92. What NMFS does include as an alternative, and what NMFS ultimately adopts, is
14 status quo management: catch limits that according to NMFS's chosen model and analysis, fail
15 to rebuild the stock within the legal timeframe.

16 93. NMFS's failure to base its decision on the impacts of the authorized catch limits
17 (rather than expected catch levels) muddies the entire rebuilding analysis. Instead of comparing
18 actual status quo management (i.e., the management regime that NMFS intends to implement)
19 to Alternatives 2 and 3, NMFS compares recent catch levels to authorized catch levels under
20 Alternatives 2 and 3. For example, despite the model's clear finding that Amendment 18 will
21 not rebuild the sardine population, the EA states:

22 Alternative 3 is projected to rebuild to the selected rebuilding target of 150,000 mt age 1+
23 biomass in 16 years. However, as stated above, the modeled results for Alternative 1
24 [now Amendment 18] when total Pacific sardine landings are assumed to remain similar
25 to recent years (i.e., 2,200 mt per year) project the stock to rebuild to 150,000 mt age 1+
26 biomass in 17 years.

27 Final EA at 15.
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1 94. Here, NMFS analyzes *Alternative 3*'s rebuilding timeframe based on the correct
2 approach—assuming the full catch limit is caught every year—and determines that Alternative
3 3 would rebuild the Pacific sardine population in 16 years. But the agency compares that to the
4 timeframe of a fictional alternative where sardine catch remains at 2,200 mt per year no matter
5 what catch limit NMFS authorizes. Under the status quo management approach in adopted
6 Alternative 1, NMFS has no way of guaranteeing catch levels will remain at 2,200 mt because
7 the agency does not establish 2,200 mt as the catch *limit*. To the contrary, as demonstrated in the
8 chart above, NMFS has consistently set annual catch limits far above 2,200 mt under the status
9 quo management approach it adopts in Amendment 18. Therefore, actual catch levels under
10 Amendment 18 could be far greater than 2,200 mt. Despite this, NMFS still refers to a scenario
11 where catch remains at 2,200 mt every year for the next 17 years as the adopted Alternative 1,
12 even though NMFS does not include scenario where catch is limited to 2,200 mt for the next 17
13 years as an alternative in the EA.

14 95. In addition to analyzing Alternative 1 based on the arbitrary assumptions that
15 fishermen will only catch 2,200 mt each year no matter how much NMFS authorizes them to
16 catch, NMFS also makes arbitrary and inconsistent assumptions about how much sardine
17 fishermen will catch under Alternative 1 vs. Alternative 3. Whereas NMFS assumes fishermen
18 **will never** catch all the sardine NMFS authorizes under Alternative 1, the agency assumes that
19 under Alternative 3 fishermen **will always** catch the full amount authorized. NMFS uses those
20 inconsistent assumptions to assert that Alternative 1 will rebuild the population in 17 years,
21 compared to rebuilding in 16 years under Alternative 3. However, if NMFS had applied the
22 correct analysis—analyzing authorized catch limits instead of assumed catch levels—to both
23 alternatives, then Alternative 1's actual rebuilding timeframe is 48 years—three times as long as
24 Alternative 3's 16-year timeframe.

25 96. In the EA, NMFS thus analyzes and presents Alternative 1 as three different
26 alternatives: catch limits equal to the acceptable biological catch (the real Alternative 1); catch
27 levels of 2,200 mt; and catch levels of 472 mt on the northern subpopulation alone. This
28

1 inaccurate framing of Alternative 1 as three separate alternatives allows NMFS to choose
2 whatever catch level best supports the agency's preferred management outcome (Alternative 1).

3 **NMFS Fails to Demonstrate How Amendment 18 Will Prevent Overfishing**

4 97. In addition to failing to rebuild the Pacific sardine, Amendment 18 also fails to
5 prevent overfishing.

6 98. Specifically, Amendment 18 allows NMFS to set annual catch limits equal to the
7 acceptable biological catch, which is determined by calculating the overfishing limit ("OFL")
8 and then applying a buffer to account for scientific uncertainty. The overfishing limit is the
9 criterion NMFS uses to determine the maximum amount of fish that can be caught each year
10 without causing overfishing.

11 99. NMFS calculates the overfishing limit by multiplying the most recent estimate of
12 sardine biomass by two other parameters: 1) the proportion of biomass that fishermen can catch
13 each year that would result in maximum sustainable yield over the long-term (referred to as
14 "E_{MSY}" or MSY exploitation rate); and 2) the proportion of sardine biomass that occurs in U.S.
15 waters as opposed to Mexican or Canadian waters (called "Distribution"). NMFS applies these
16 parameters in the following formula: $\text{Overfishing Limit} = \text{Biomass} * E_{\text{MSY}} * \text{Distribution}$.

17 100. NMFS calculates the acceptable biological catch level by reducing the overfishing
18 limit by an amount meant to account for scientific uncertainty in estimating the overfishing
19 limit, using the following formula: $\text{Overfishing Limit} * \text{Buffer}$.

20 101. The CPS FMP allows NMFS to set the annual catch limit equal to or less than the
21 acceptable biological catch.

22 102. Since 2015, when the major directed fishery closed, NMFS has used the
23 acceptable biological catch formula to set annual catch limits for the live bait fishery, minor
24 directed fisheries, exempted fishing permit catch, incidental catch, and Tribal allocations.

25 103. The overfishing limit and associated catch limits are only effective if the
26 underlying values used to calculate them are accurately estimated. If any of the underlying
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1 parameters are overestimated, the overfishing limit (from which the acceptable biological catch
2 and annual catch limits are derived) will not prevent overfishing because it will be set greater
3 than the maximum sustainable yield.

4 104. NMFS consistently overestimates two of the underlying parameters used to
5 calculate allowable catch levels for Pacific sardine: the maximum sustainable yield exploitation
6 rate (“ E_{MSY} ”) and Distribution. As a result, NMFS set overfishing limits that exceed maximum
7 sustainable yield, which resulted in the agency authorizing excessive fishing pressure on the
8 Pacific sardine population throughout the decline, exacerbating the decline of the population
9 and making it more difficult for it to recover. Amendment 18, which reflects status quo
10 management, uses this exact same approach.

11 ***Under Status Quo Management, NMFS Overestimates the Rate of Fishing Mortality the***
12 ***Pacific Sardine Population Can Withstand***

13 105. Fishery management is predicated on the idea that fish populations reproduce
14 more than necessary to replace lost individuals, and that this surplus can be caught without
15 decreasing the population level over time. Maximum sustainable yield is the highest amount of
16 fish that can be extracted over a long period of time without decreasing the population level.

17 106. E_{MSY} is the exploitation rate that, if applied to regularly updated biomass
18 estimates over the long term, would result in maximum sustainable yield from the population. It
19 is expressed as the proportion of the total biomass that can be caught in a given year to achieve
20 maximum sustainable yield over the long term. E_{MSY} is directly related to the population’s
21 capacity to reproduce and replace itself, which is generally discussed in terms of productivity
22 (i.e., the rate of production of new biomass by a population) and recruitment (i.e., the number of
23 new fish entering the population each year). Higher relative recruitment means higher
24 productivity and vice versa. For a species like sardine, which oscillates between extended
25 periods of high and low productivity, E_{MSY} varies based on the level of productivity. A fishing
26 rate that exceeds the E_{MSY} in a given year constitutes overfishing.

1 107. The CPS FMP allows NMFS to choose an EMS_Y between 0 and 0.25 each year,
2 depending on the productivity of the population. At times of high productivity, fishing could
3 sustainably remove up to a quarter of the sardine biomass, an EMS_Y of 0.25. In contrast, at times
4 of low productivity, the population may not be able to withstand any fishing at all, an EMS_Y of
5 zero.

6 108. Over the last five years, Pacific sardine recruitment levels “have been some of the
7 lowest on record.” Pac. Fishery Mgmt. Council, *Coastal Pelagic Species Management Team*
8 *Report on Pacific Sardine Assessments, Harvest Specifications, and Management Measures—*
9 *Final Action, Supplemental CPSMT Report 1* at 7 (April 2021),
10 <https://www.pcouncil.org/documents/2021/04/e-4-a-supplemental-cpsmt-report-1.pdf>. To avoid
11 overfishing, therefore, NMFS should have used a correspondingly low EMS_Y value. Instead, the
12 average EMS_Y set by NMFS over the last 5 years was 0.24, close to the maximum allowed under
13 the CPS FMP.

14 109. This mismatch stems from a fatal flaw in the way NMFS determines EMS_Y values.
15 Instead of looking directly at recruitment data from surveys or stock assessments to determine
16 EMS_Y as recommended by its own scientists, NMFS relies on ocean temperature as a proxy for
17 EMS_Y values. As early as 2010, NMFS scientists had determined the chosen ocean temperature
18 proxy was falsely predicting high EMS_Y values for Pacific sardine. NMFS conducted a workshop
19 in 2013 to re-evaluate the temperature relationship (from temperatures measured at Scripps
20 Institute of Oceanography Pier), and in 2014 instituted a new temperature index (from
21 temperatures measured by the California Cooperative Oceanic Fisheries Investigations
22 (CalCOFI)). In 2017, NMFS scientists produced analysis indicating that the new CalCOFI index
23 was also falsely predicting high EMS_Y values and published their analysis in 2019. The
24 Council’s CPS Management Team and Science and Statistical Committee acknowledged this
25 overestimation of EMS_Y prior to NMFS’s approval of Amendment 18. Nonetheless, NMFS
26 carries forward this approach in Amendment 18 and continues to use this discredited method for
27 determining EMS_Y values to this day.
28

1 110. NMFS's use of inflated temperature-based EMSY values under the approach
2 adopted in Amendment 18 allows the overfishing limit to be set far higher than the level that
3 would produce maximum sustainable yield, which fails to prevent overfishing.

4 ***NMFS Fails to Take into Account the Amount of Sardine Catch Occurring Outside U.S.***
5 ***Waters***

6 111. The overfishing limit is also determined by the Distribution, which NMFS defines
7 as the amount of sardine biomass that occurs in U.S. waters as opposed to foreign waters.
8 NMFS uses a constant Distribution value of 0.87, which assumes 87 percent of the total sardine
9 biomass is present in U.S. waters, and that 13 percent is outside U.S. waters. With the
10 Distribution parameter, NMFS thus assumes that the United States is entitled to 87 percent of
11 the total catch internationally. Essentially, NMFS prorates the amount of sardines U.S.
12 fishermen are allowed to catch by the Distribution parameter and assumes that all other nations
13 will only take 13 percent of the total catch. However, Mexico has routinely caught more than 13
14 percent of the coastwide sardine catch each year, indicating that the Distribution parameter is
15 deeply flawed. For example, NMFS estimated that Mexico caught 96 percent of the coastwide
16 catch in 2019.

17 112. Indeed, as part of a scientific workshop NMFS conducted in 2015 to re-evaluate
18 the Distribution parameter, NMFS's own scientists determined the current Distribution
19 parameter is flawed and identified superior methodologies for determining Distribution based
20 on actual recent catches occurring outside U.S. waters.

21 113. But NMFS does not incorporate any of this updated, superior information in
22 calculating sardine annual catch limits. Instead, the agency continues to rely on the same
23 outdated Distribution parameter of 87 percent, which assumes that only 13 percent of the catch
24 will occur outside of U.S. waters.

25 114. This overestimated Distribution parameter permits the U.S. fleet to catch more
26 Pacific sardines than it would if NMFS accurately accounted for Pacific sardine catch in foreign
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1 waters, thus arbitrarily inflating catch limits and allowing excessive fishing pressure on the
2 critically low and declining population.

3 115. Despite these known flaws and available means for better estimating sardine
4 Distribution, NMFS refuses to update this flawed Distribution value or address its effect in
5 setting unsustainably inflated catch limits. NMFS continues this exact approach in Amendment
6 18. As a result, Amendment 18 allows the U.S. overfishing limit to be set too high to prevent
7 overfishing on the population as a whole.

8 116. NMFS's continued use of overestimated E_{MSY} and Distribution parameters as
9 permitted in Amendment 18 necessarily results in an overestimated overfishing limit, and thus
10 overestimations of the acceptable biological catch and annual catch limits derived from it. The
11 overfishing limit, acceptable biological catch, and annual catch limits are the mechanisms by
12 which NMFS is supposed to ensure that overfishing does not occur. If they are grossly
13 overestimated—as they are under both status quo management and Amendment 18 —NMFS
14 cannot prevent overfishing as the MSA requires.

15 **NMFS's EA Fails to Adequately Consider Impacts to Marine Predators**

16 117. Pacific sardines are among a handful of forage species that form the basis of the
17 West Coast ecosystem. Sardines are more energetically dense than some other forage species
18 like rockfish and squid and, along with anchovy, play a critical role as forage fish in the
19 California Current marine ecosystem. Multiple predators depend in part on sardines for high
20 quality food, including ESA-listed species such as Chinook salmon, California least tern,
21 marble murrelets, and humpback whales. Indeed, sardines are even explicitly included as an
22 essential feature of humpback whales' critical habitat designation.

23 118. Yet in its EA, NMFS dismisses the importance of sardines in the ecosystem,
24 stating, "most Pacific sardine predators are generalists that are not dependent on the availability
25 of a single species but rather on a suite of species, any one (or more) of which is likely to be
26 abundant each year." Final EA at 25. The EA omits key research by NMFS scientists, however,
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1 that directly linked mass starvation and die-offs among California sea lions in 2013–2016 to the
2 simultaneous low sardine and anchovy biomass. The EA also omits substantial information
3 from the U.S. Fish and Wildlife Service on mass reproductive failures among brown pelicans
4 during the same time period, which that agency also linked to low abundance of sardines and
5 anchovies.

6 119. Moreover, the EA fails to consider the impact of an indefinitely overfished
7 sardine population on ESA-listed predators. Anchovies, like sardines, fluctuate widely in
8 abundance over time. When anchovies inevitably fluctuate downward, combined low levels of
9 sardines and anchovies could have serious ramifications on marine predators. The EA fails to
10 analyze how low levels of both anchovies and sardines may affect listed predators.

11 120. The EA also selectively and inappropriately cites scientific literature, by cherry
12 picking scientific findings to discount the importance of sardines. For example, the EA cites
13 Becker and Beissinger (2006) as evidence for the marbled murrelet, stating:

14 there is little information on quantities of Pacific sardine consumed or the relative
15 importance in its diet. Marbled murrelets are known to consume many different prey
16 species including other CPS and like many predators are capable of prey switching.

17 Final EA at 24.

18 121. However, the EA omits the key finding of the Becker and Beissinger (2006)
19 study, which specifically attributed the decline of marbled murrelets to the collapse of the
20 sardine population in the late 1940s. The study states: “Decreased prey resources caused
21 murrelets to fish further down on the food web for less-energy dense prey, which impeded the
22 species’ ability to reproduce, and may have contributed to its listing under the Endangered
23 Species Act.” Benjamin H. Becker & Steven R. Beissinger, *Centennial Decline in the Trophic*
24 *Level of an Endangered Seabird After Fisheries Decline*, 20 *Conserv. Biol.* 470 (2006). While
25 the EA suggests that Pacific sardine declines will not adversely affect these predators based on
26 the idea that they can simply switch to other types of prey, the actual study NMFS cites

1 concludes that prey switching *contributed* to the ESA listing of marbled murrelets, because
2 other forage species are not as energy dense as sardines.

3 122. In addition to providing high quality food to multiple ESA-listed marine
4 predators, sardines are forage for economically important species like tuna, marlin, and salmon
5 as well for common thresher sharks and shortfin mako sharks. Current essential fish habitat
6 designations for marlin, common thresher sharks, and shortfin mako sharks list sardines as a
7 major source of prey.

8 123. The essential fish habitat designation for salmon explicitly includes sardine
9 fishing as a potential adverse impact on salmon essential fish habitat: “For Pacific salmon,
10 commercial and recreational fisheries for many types of prey species potentially decrease the
11 amount of prey available to Pacific salmon.” Appendix A to the Pacific Coast Salmon FMP at
12 40. Indeed, the Pacific salmon FMP even relies on aspects of sardine management to prevent
13 this adverse impact on salmon essential fish habitat:

14 Federal management already includes considerations for the forage needs of predator
15 species, including salmon. For example, the harvest guideline formula for Pacific sardine
16 incorporates a 150,000 metric ton (mt) cutoff and a relatively low harvest fraction, both
of which are intended in part to provide adequate forage for dependent species.

17 Pac. Fishery Mgmt. Council, *Appendix A to the Pacific Coast Salmon FMP as Modified by*
18 *Amendment 18* at 40–41 (Sept. 2014).

19 124. Now that the sardine population has fallen below 150,000 mt, NMFS no longer
20 uses the more precautionary formula for setting catch limits, which includes the harvest fraction
21 referenced in the salmon essential fish habitat designation. Therefore, catch limits set under
22 Amendment 18 do not protect salmon essential fish habitat in the way the salmon FMP assumes
23 they do. Likewise, sardine biomass is now far below the 150,000 mt Cutoff that the Salmon
24 FMP cites as providing “adequate forage for dependent species.” *Id.*

25 125. It bears emphasis that the measures the salmon FMP relies upon to protect sardine
26 as a component of essential fish habitat only apply when sardine biomass is above 150,000 mt.
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1 But by adopting Amendment 18, NMFS has committed to a plan that its own analysis shows
 2 will keep sardine biomass below this level until at least 2068, half a century from now. The
 3 sardine management measures the Pacific salmon FMP cites to avoid adverse impacts to
 4 essential fish habitat, therefore, will not be operational for fifty years. NMFS cannot rationally
 5 assume that the same sardine management measures that Amendment 18 ensures will not be in
 6 effect for the next few decades will also protect sardine as forage and as a key component of
 7 salmon essential fish habitat.

8 **The EA's Economic Analysis is Arbitrary and Capricious**

9 126. The MSA requires NMFS to first and foremost ensure that conservation and
 10 management measures prevent overfishing and rebuild the sardine population. *Nat. Res. Def.*
 11 *Council v. NMFS*, 421 F.3d at 879. Only after determining that more than one alternative can
 12 accomplish these paramount conservation goals may NMFS consider the economic effects of
 13 those alternatives. *Id.*; *Nat. Res. Def. Council, Inc. v. Daley*, 209 F.3d at 753. As detailed above,
 14 NMFS fails to demonstrate that Amendment 18 prevents overfishing or rebuilds the sardine
 15 population as the MSA requires. The agency nonetheless adopts Amendment 18 as its
 16 rebuilding plan based on alleged economic concerns, improperly elevating those concerns over
 17 the conservation goals of the MSA. This choice alone violates the MSA, even assuming the
 18 agency's economic analysis is accurate. Here, however, NMFS's economic analysis is far from
 19 accurate. NMFS underestimates the true impacts of failing to rebuild the sardine population and
 20 overestimates the costs of more effective conservation measures in its EA. The EA's economic
 21 analysis omits relevant information, uses inconsistent assumptions to compare the various
 22 alternatives, and fails to support conclusions with analysis.

23 127. As stated above, NMFS analyzes and presents Alternative 1 as three different
 24 alternatives in the EA: catch limits equal to the acceptable biological catch (the real Alternative
 25 1); catch levels of 2,200 mt; and catch levels of 472 mt on the northern subpopulation alone.
 26 This inaccurate framing of Alternative 1 as three separate alternatives allows NMFS to choose
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1 whatever catch level bests supports the agency's preferred management outcome (Alternative
2 1). For example, in analyzing economic benefit to the fishery, NMFS assumes the fishery will
3 catch the full acceptable biological catch every year—and for a longer period than 17 years. As
4 the EA states:

5 Based on the modeling results, the smaller-scale sectors of the fishery and the incidental
6 fishery for other CPS and non-CPS, would not be expected to be severely limited under
7 the initially modeled Alternative 1 (*i.e.*, assuming the full ABC [acceptable biological
catch] is harvested) through approximately 2040.

8 Final EA at 20. Here, NMFS assumes that the full amount of authorized catch *will* be taken.

9 128. But when comparing the economic impacts of each alternatives' rebuilding
10 timeframes, NMFS switches back to assuming that fishermen will *not* catch the full authorized
11 catch limit and that catch will remain at 2,200 mt. That assumption, of course, is the predicate
12 for NMFS's assertion that Alternative 1 will rebuild the population in 17 years compared to
13 rebuilding in 16 years under Alternative 3. But once again, NMFS is not constraining catch to
14 2,200 mt under Alternative 1. Under catch levels authorized in Alternative 1, NMFS's model
15 shows the population takes 48 years to rebuild. An accurate economic analysis would thus
16 compare the rebuilding time of Alternative 1's authorized catch limits (48 years) to the
17 rebuilding time of Alternative 3's authorized catch limits (16 years). The economic
18 ramifications of constraining catch for 48 years are far different than the economic ramifications
19 of constraining catch for 16 years.

20 129. In fact, previous analysis by NMFS and the CPS Management Team that was
21 omitted from the EA shows Alternative 3 has a better economic outcome than Alternative 1 for
22 exactly this reason: Alternative 3 rebuilds the population faster resulting in higher catches and
23 therefore greater economic benefit for fishermen. The EA fails to acknowledge or analyze this
24 relevant information that conflicts with NMFS's conclusion that Alternative 1 is economically
25 superior to Alternative 3.

26 130. The EA also asserts that Alternative 3 has "drastic adverse impacts to not only the
27 live bait industry, but would also seriously disrupt various recreational fisheries, most notably in
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1 Southern California.” Final EA at 22. But the EA fails to support these conclusions with
 2 analysis and omits relevant information about the live bait fishery’s ability to switch to other
 3 species such as anchovy.

4 131. Indeed, in the 1990s, the live bait fishery predominantly took northern anchovy,
 5 and only increased the proportion of sardine when sardines became more abundant. In fact, the
 6 CPS FMP envisions “the live bait catch is expected to be mostly sardine when sardines are
 7 abundant and mostly anchovy when anchovy are abundant.” Pac. Fishery Mgmt. Council, *CPS*
 8 *FMP Amendment 8* at B-92 (Dec. 1998). NMFS’s most recent surveys of forage fish abundance
 9 indicate low sardine biomass, but healthy populations of anchovy. But in the EA, NMFS still
 10 assumes that only marine predators can switch to other forage species, and that live bait
 11 fishermen must rely exclusively on sardines.

12 132. Oceana submitted extensive comments detailing the flaws in the EA, the
 13 rebuilding analysis, and Amendment 18. NMFS approved Amendment 18 on June 14, 2021,
 14 without making any changes.

15 **FIRST CLAIM FOR RELIEF**

16 **Violation of MSA and APA—NMFS fails to specify a reasonable rebuilding target for the** 17 **sardine population based on best available science**

18 133. Plaintiff re-alleges, as if fully set forth herein, each and every allegation contained
 19 in the preceding paragraphs.

20 134. The MSA requires NMFS to base the Amendment 18 “upon the best scientific
 21 information available.” 16 U.S.C. § 1851(a)(2).

22 135. The MSA also requires NMFS to rebuild fish populations to a biomass level
 23 capable of producing maximum sustainable yield. 16 U.S.C. §§ 1802(33)(C) (definition of
 24 optimum yield for overfished population), 1851(a)(1) (all conservation and management
 25 measures must prevent overfishing and achieve optimum yield), 1853(a)(1)(A); *see also* 50
 26 C.F.R. § 600.310(j)(i)(3)(A).

136. NMFS fails to identify a rebuilding target for sardines that is capable of producing maximum sustainable yield. Instead, NMFS identifies a rebuilding target of only 150,000 mt, the Cutoff biomass threshold under the current sardine management regime, which triggers the close of the major directed fishery. By definition, the Cutoff value cannot represent a population level that achieves maximum sustainable yield, as the primary fishery is prohibited from catching sardines when biomass is at this level.

137. In selecting this arbitrarily low rebuilding target, NMFS ignores the best available science, which indicates that the long-term average sardine biomass capable of supporting maximum sustainable yield is at least 3 times, and possibly 10 times, greater than 150,000 mt.

138. NMFS's selection of this irrationally low rebuilding target violates the MSA's requirements to rebuild to a level capable of achieving and maintaining maximum sustainable yield and to base Amendment 18 on the best available science.

139. Amendment 18 is thus arbitrary and capricious and otherwise not in accordance with the MSA and its implementing regulations, and is reviewable under the APA, 5 U.S.C. §§ 701–706.

140. NMFS's actions and failures to act are arbitrary and capricious, violate the MSA and the APA, and are causing irreparable injury to Plaintiff for which it has no adequate remedy at law.

SECOND CLAIM FOR RELIEF

Violation of MSA and APA—NMFS fails to demonstrate based on best available science that Amendment 18 will rebuild the sardine population

141. Plaintiff re-alleges, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

142. The MSA requires NMFS to rebuild overfished populations of fish in the shortest time possible. 16 U.S.C. § 1854(e)(4)(A). NMFS must also base all conservation and management measures on the best scientific information available, 16 U.S.C. § 1851(a)(2), and give priority to the Act's conservation requirements over short-term economic considerations.

1 *Nat. Res. Def. Council v. NMFS*, 421 F.3d at 879; *Nat. Res. Def. Council v. Daley*, 209 F.3d at
2 753.

3 143. NMFS's own analysis shows that the agency's chosen rebuilding plan,
4 Amendment 18, authorizes catch levels that will not rebuild the sardine population within the
5 legal timeframe, much less the shortest timeframe possible. NMFS's decision to approve
6 Amendment 18 even though the best available science shows that it will not rebuild the sardine
7 population violates the MSA's requirements to rebuild overfished populations and base the
8 rebuilding plan on the best available science. 16 U.S.C. §§ 1851(a)(2), 1854(e)(3)(A).

9 144. NMFS justifies selecting Amendment 18 over other alternatives based on
10 impermissible assumptions and considerations. First, NMFS bases its analysis of the effects of
11 Amendment 18 on an assumption that the fishing industry will catch far fewer sardine each year
12 than NMFS authorizes it to catch. NMFS uses this assumption to incorrectly assert that
13 Amendment 18 will rebuild the sardine population in 17 years instead of 48 years. Analyzing
14 expected fishing behavior rather than the amount of catch Amendment 18 authorizes violates
15 NMFS's duty under the MSA to ensure its management measures—i.e., the catch levels it
16 authorizes—prevent overfishing and rebuild the population in the shortest time possible, 16
17 U.S.C. § 1851(a)(1), 1854(e)(3)–(4), and is arbitrary and capricious, in violation of the APA.

18 145. Second, NMFS selects status quo measures for Amendment 18 based on an
19 economic analysis that purports to show that those measures have less economic impact on the
20 fishing industry and thus better serve the needs of fishing communities. However, even if that
21 analysis were not fatally flawed, it does not provide a valid basis for NMFS to approve a
22 rebuilding plan that fails to meet the MSA's most minimal requirements to rebuild the sardine
23 population. The MSA permits NMFS to consider short-term economic interests in selecting a
24 rebuilding plan only if the agency first demonstrates based on best available science that both
25 competing plans will rebuild the population. *See Nat. Res. Def. Council v. Daley*, 209 F.3d at
26 753 (stating NMFS "must give priority to conservation measures. It is only when two different
27 plans achieve similar conservation measures that the Service takes into consideration adverse
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economic consequences.”); *See also Nat. Res. Def. Council v. NMFS*, 421 F.3d at 879. NMFS’s own analysis concludes that Amendment 18 will not rebuild the sardine population as required under the MSA; NMFS may not use economic considerations as a valid basis to approve a rebuilding plan that will not rebuild Pacific sardine.

146. NMFS’s approval of Amendment 18 violates the MSA’s requirements to ensure the plan will rebuild the Pacific sardine population based on the best available science.

147. Amendment 18 is thus arbitrary and capricious and otherwise not in accordance with the MSA and its implementing regulations, and is reviewable under the APA, 5 U.S.C. §§ 701–706.

148. NMFS’s actions and failures to act are arbitrary and capricious, violate the MSA and the APA, and are causing irreparable injury to the Plaintiff for which it has no adequate remedy at law.

THIRD CLAIM FOR RELIEF

Violation of MSA and APA—NMFS fails to demonstrate based on best available science that Amendment 18 will prevent overfishing

149. Plaintiff re-alleges, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

150. The MSA requires NMFS to end overfishing immediately after identifying a population as overfished. 16 U.S.C. § 1854(e)(3)(A). Within two years after identifying a population as overfished, NMFS must adopt “a fishery management plan, plan amendment, or proposed regulations” that “prevent overfishing from occurring in the fishery whenever such fishery is identified as approaching an overfished condition.” *Id.* § 1854(e)(3)(A). The MSA also requires that all conservation and management measures, including rebuilding plans, prevent overfishing. *Id.* § 1851(a)(1).

151. Amendment 18 calculates catch limits based on multiple management parameters that NMFS’s own scientists conclude are incorrectly estimated and result in substantial overestimates of how much fishing the sardine population can withstand. Specifically,

Amendment 18 continues to calculate the overfishing limit, acceptable biological catch, and annual catch limits using a vast overestimate of the maximum rate of fishing mortality the population can withstand each year in order to produce maximum sustainable yield in the long term (EMSY). The status quo management continued with Amendment 18 also substantially overestimates the proportion of fishing that occurs in U.S. waters as compared to foreign waters (Distribution).

152. NMFS scientists have repeatedly published studies discrediting NMFS's method for calculating EMSY based on an inaccurate ocean temperature proxy and its reliance on decades-old values for sardine Distribution. NMFS scientists have also identified superior methods for calculating these values. The best available data from the past decade shows that these flawed assumptions resulted in NMFS setting catch limits well above MSY fishing rates, which failed to prevent overfishing in the past, and will not prevent overfishing in the future. Yet NMFS adopts the same measures in Amendment 18.

153. NMFS's decision in Amendment 18 to rely on disproven management measures that are known to result in excessive fishing mortality rates, and thus cannot prevent overfishing of the critically low Pacific sardine population, is arbitrary and capricious and otherwise not in accordance with the MSA and its implementing regulations, and is reviewable under the APA, 5 U.S.C. §§ 701–706.

154. NMFS's actions and failures to act are arbitrary and capricious, violate the MSA and the APA, and are causing irreparable injury to the Plaintiff for which it has no adequate remedy at law.

FOURTH CLAIM FOR RELIEF

Violation of NEPA and APA—NMFS fails to analyze the impacts of the authorized action

155. NEPA requires NMFS to accurately and transparently analyze the environmental impacts of the “action” the agency is authorizing. 42 U.S.C. § 4332; 40 C.F.R. § 1501.3(b). The agency must take a hard look at those impacts based on accurate, high quality information. 40

1 C.F.R. § 1502.23 (agencies must “ensure the professional integrity, including scientific
2 integrity, of the discussions and analyses in environmental documents”). NEPA also requires
3 that agencies inform both the decision-maker and the public about the environmental effects of
4 the government’s decision-making. *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. at 768. The EA
5 violates these requirements.

6 156. NMFS’s EA fails to analyze the environmental impacts of its action—that is, the
7 full amount of sardine NMFS can authorize the fishery to take each year—and instead, analyzes
8 an assumed level of fishing below the full amount the agency authorizes. Specifically, NMFS
9 analyzes Alternative 1 based on average annual catch levels of 2,220 mt instead of the full value
10 of the annual catch limits authorized under Amendment 18, limits which could easily be eight
11 times higher than recent catch levels. The EA thus fails to analyze the effects of the full catch
12 limits NMFS is authorizing in Amendment 18. The agency’s characterization of the
13 environmental impacts of the lower catch levels—which are not actual limits required under
14 Amendment 18—as the environmental impacts of Amendment 18 misleads both the public and
15 decision-makers.

16 157. In addition, NMFS presents an incomplete and misleading picture of the
17 economic effects of the various alternatives in multiple ways. First, NMFS employs a series of
18 conflicting assumptions regarding how much sardine fishermen will catch each year under each
19 alternative depending on the agency’s desired outcome. Second, NMFS fails to consider the
20 economic benefits of shorter rebuilding timeframes and ignores analysis by the agency’s own
21 technical advisors showing that Alternative 3 out-performed Alternative 1 economically.
22 Finally, NMFS exaggerates the economic harms to the live bait fishery by ignoring the fishery’s
23 ability to switch from sardines to anchovies when sardine abundance is low and anchovy
24 abundance is high. NMFS’s failure to consider relevant information and NMFS’s reliance on
25 inconsistent assumptions in its economic analysis violates its duty to ensure the professional and
26 scientific integrity of its analysis and is arbitrary and capricious.
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158. By issuing and relying on an EA that fails to meet the requirements of NEPA, its implementing regulations, and governing precedent, NMFS has acted in a manner that is arbitrary, capricious, an abuse of discretion, and not in accordance with law, and without observance of procedures required by law, in violation of NEPA, 42 U.S.C. § 4332, its implementing regulations, and the APA, 5 U.S.C. §§ 701–706.

159. NMFS's actions and failures to act violate NEPA and the APA and are causing irreparable injury to Plaintiffs for which they have no adequate remedy at law.

FIFTH CLAIM FOR RELIEF

Violation of NEPA and APA—NMFS fails to take hard look at impacts to sardine population and marine predators

160. Plaintiff re-alleges, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

161. Under NEPA, agencies must take a “‘hard look’ at the likely effects of the proposed action. Taking a ‘hard look’ includes ‘considering all foreseeable direct and indirect impacts.’” *Ctr. for Biological Diversity v. Salazar*, 695 F.3d 893, 916–17 (9th Cir. 2012). This analysis must be based on accurate, high quality information. 40 C.F.R. § 1502.23 (agencies must “ensure the professional integrity, including scientific integrity, of the discussions and analyses in environmental documents”).

162. NMFS fails to take a hard look at impacts marine predators dependent on sardines. For example, the EA dismisses impacts to marine predators by stating “most Pacific sardine predators are generalists” and can thus switch to other prey. This passing statement ignores the best available science showing sardine are among a very few species of forage fish that provide energy-dense nutrition for predators and that switching to less nutritious species can result in malnutrition, breeding failures, and other harm to predators. Moreover, NMFS fails to consider the impacts to predators when other important forage species, such as northern anchovy, experience low abundance at the same time.

1 FONSI. NMFS's responses to Oceana's comments in the Final EA indicate that NMFS
2 concluded that no EIS is necessary. To comply with its procedural NEPA obligations, NMFS
3 must prepare either a FONSI or an EIS; NMFS's failure to do either violates NEPA. 40 C.F.R.
4 § 1501.3(b) and § 1501.6(a).

5 169. In addition to this procedural violation, NMFS's decision not to prepare an EIS
6 violates NEPA because Amendment 18 will have a significant impact on the environment.

7 170. One factor influencing whether an action is significant is whether the action
8 violates another environmental law. The EA demonstrates that Amendment 18 will violate
9 another environmental law—the MSA. The MSA requires NMFS to use the best available
10 science, rebuild overfished stocks, and ensure that all conservation and measures prevent
11 overfishing. As set forth in the Claims 1 through 3 above, NMFS failed to meet this bar. Thus,
12 Amendment 18 violates another environmental law and is significant, necessitating an EIS
13 under NEPA.

14 171. An action's impact on species protected under the ESA also influences whether an
15 action is significant under NEPA. Sardines are an important food source to multiple ESA-listed
16 species, such as humpback whales and marbled murrelets. If sardines fail to rebuild by 2050 or
17 later, as NMFS's model indicates will happen, multiple marine predators could face food
18 shortages, breeding failures, and other harms. This constitutes an impact on ESA-listed marine
19 predators, and an EIS is therefore required.

20 172. NMFS's decision in Amendment 18 to allow sardines to persist at low abundance
21 levels for at least half a century violates the MSA and will have serious consequences for ESA-
22 listed sardine predators. NEPA thus requires that NMFS prepare an EIS to analyze Amendment
23 18's significant environmental impacts.

24 173. By failing to prepare an EIS to evaluate Amendment 18's significant
25 environmental impacts, issuing and relying on an inadequate EA, and by failing to issue a
26 FONSI for Amendment 18, NMFS has acted in a manner that is arbitrary, capricious, an abuse
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of discretion, not in accordance with law, and without observance of procedures required by law, in violation of NEPA, 42 U.S.C. § 4332, and the APA, 5 U.S.C. §§ 701–706.

174. NMFS’s actions and failures to act violate NEPA and the APA and are causing irreparable injury to Plaintiffs for which they have no adequate remedy at law.

SEVENTH CLAIM FOR RELIEF

Violation of MSA and APA—NMFS fails to analyze and minimize impacts to essential fish habitat

175. Plaintiff re-alleges, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

176. The MSA requires NMFS to minimize adverse effects to essential fish habitat to the extent practicable. 16 U.S.C. § 1853(a)(7). Adverse effects include “direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, *prey species and their habitat*, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH [essential fish habitat].” 50 C.F.R. § 600.810(a) (emphasis added).

177. Fishery management plans for Pacific salmon and highly migratory species include sardines as essential fish habitat. Current EFH designations for common thresher sharks, shortfin makos, salmon, and striped marlin recognize sardine as a major prey species. To avoid adverse effects to EFH for Pacific salmon, the Pacific salmon FMP explicitly relies on sardine management measures that are no longer in existence and will not apply for at least five decades due to Amendment 18. Despite this, NMFS fails to analyze how Amendment 18 will affect essential fish habitat, much less any ways to minimize such effects.

178. NMFS’s failure to minimize Amendment 18’s effects on essential fish habitat is arbitrary and capricious and otherwise not in accordance with the MSA and its implementing regulations, and is reviewable under the APA, 5 U.S.C. §§ 701–706.

179. NMFS's actions and failures to act are arbitrary and capricious, violate the MSA and the APA, and are causing irreparable injury to the Plaintiff for which it has no adequate remedy at law.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that the Court:

- A. Declare that Defendants violated the MSA and the APA as described above because Amendment 18 is not based on the best scientific information available, fails to rebuild the Pacific sardine population in a timely manner, fails to identify a lawful rebuilding target, fails to prevent overfishing, fails to minimize impacts to essential fish habitat, and is arbitrary and capricious and not in accordance with law;
- B. Declare that Defendants violated NEPA and the APA as described above because Amendment 18's EA fails to analyze the significant environmental impacts of the agency action, fails to adequately analyze Amendment 18's impacts on marine predators and essential fish habitat, and because Defendants failed to prepare an EIS or issue a FONSI;
- C. Vacate Amendment 18;
- D. Vacate Amendment 18's EA;
- E. Remand Amendment 18 to Defendants for completion of a new rebuilding plan that replaces Amendment 18 and complies with the MSA and the APA within no more than 9 months from the date of the entry of judgment.
- F. Remand Amendment 18's EA to Defendants for completion of an EIS that replaces the current EA and complies with NEPA and the APA within no more than 9 months of the judgement.
- G. Maintain jurisdiction over this action until Defendants are in compliance with the MSA, NEPA, the APA, and every order of this Court;
- H. Award Plaintiff its costs of litigation, including reasonable attorney and expert witness fees; and
- I. Grant Plaintiff such further and additional relief as the Court may deem just and proper.

1
2 DATED: July 14, 2021.

3 /s/ Danika L. Desai

4 Danika L. Desai (CA Bar No. 326575)

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